

Oligo Sequences:

Leader Oligos:

1L: 5' CGACGCCATATTACGGCAAAAAATGGGTACACAAACCTGCATAAAC
 2L: 5' CAAAAAAATGGGCAATAAGAATTGATAAGTACCCATTAAATTAACT
 3L: 5' CTAGAGTTAAATTAAAGTGGTACT
 4L: 5' TATCAAATTCTTATTGCCCATTTTGGTTATGCAAGTTTGTGTA
 5L: 5' CGCATTTCGCATAATATGCCGTAC

Trailer Oligos:

1T: 5' GTATTCAATTATAGTTATTAAATTAATTTAAATACTATAATTTTAAATA
 2T: 5' ACTTTTAGTGAACCTAACTCCTAAAGTTATCATTAACTCTGGAGGAATAA
 3T: 5' ATTTAAACCCCTAACTCTAAATTGGTTTATATGTTTATTTAACTAATTACGAG
 4T: 5' ATTTAGTTTGACACTTTCTCGTTTATAGTGAAGTGTGTTA
 5T: 5' AGCTTAATACGACTCACTAAACGA
 6T: 5' GAAAAAAAGTGTCAAAACTAAATCTCGTAATTAGTTAAATACACATAT
 7T: 5' AACCAATTAGATTGGTTAAATTATCCCTCCAAGATTAAATGATA
 8T: 5' ACTTTAGGATTAGTTCACTAAAGTTAATTATGATTTTA
 9T: 5' ATTTAAATAACTAAATTGATACTGCA

FIG. 1

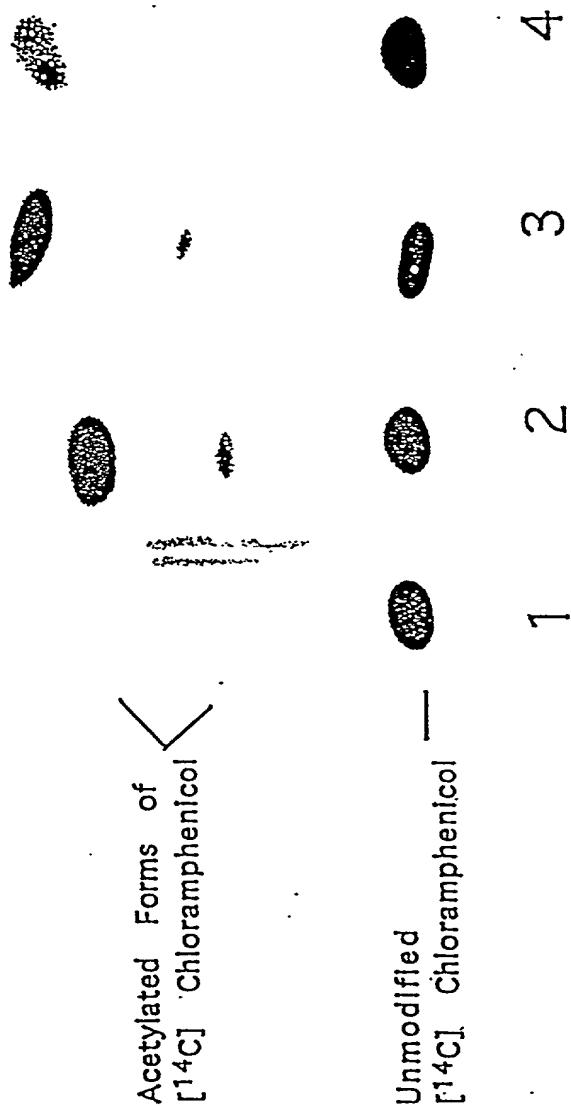
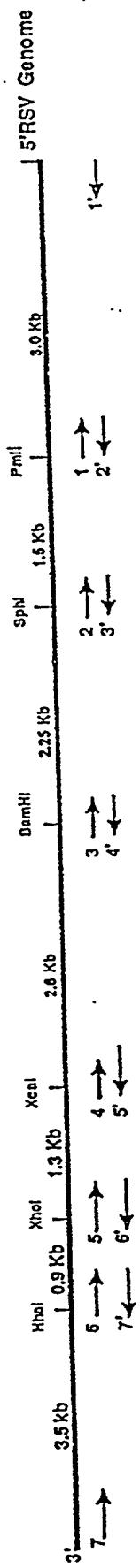


FIG. 2

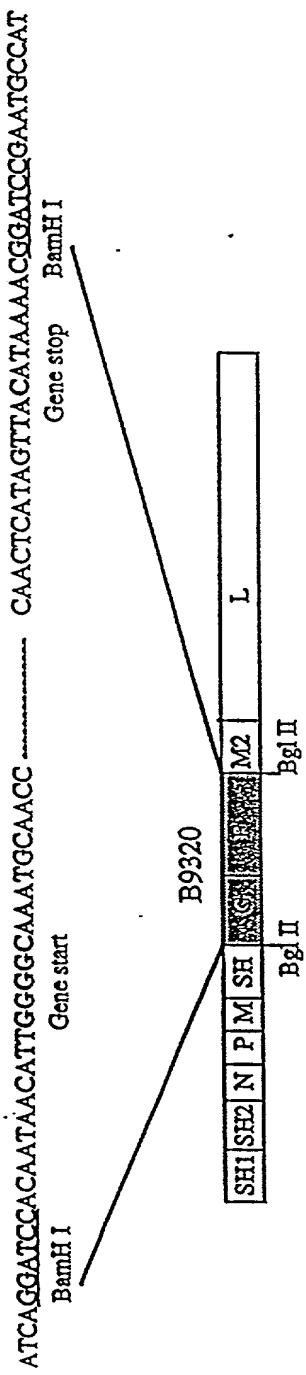


Primer Sequences:

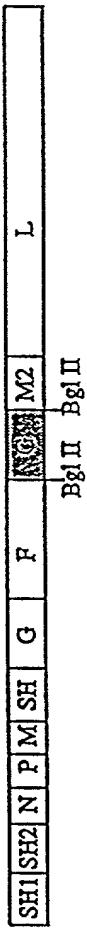
- 1: 5' GTTTAACACGGTGGTGAG
- 2: 5' ACATATAAGGCATGCACC
- 3: 5' GACAAAATGGATGCCATT
- 4: 5' TGGTTGGTATACCAGTGT
- 5: 5' TACCAAGAGCTCGAGTCA
- 6: 5' TTTACCATATGCCGTAATCT
- 7: 5' AGGGAAAAATGGGTACA
- 1': 5' ACGAGAAAAAAAGTGTCAA
- 2': 5' CTCACCAACGGTGTAAAC
- 3': 5' GGTGCATGGCTATATGT
- 4': 5' AATGGGATOCATTGTCC
- 5': 5' AACACTGGTATAACCAACCA
- 6': 5' TGACTCGAGCTCTGGTA
- 7': 5' ACATTAGCGCATATGGTAA

FIG. 3

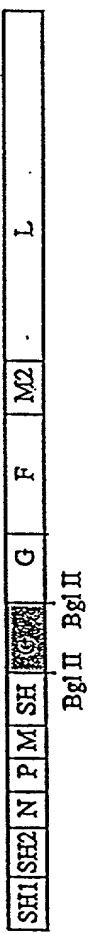
A. RSSVB-GF



B. RSSVB9320G-F/M2



C. RSSVB9320G-SH/G



FIGS. 4A-C

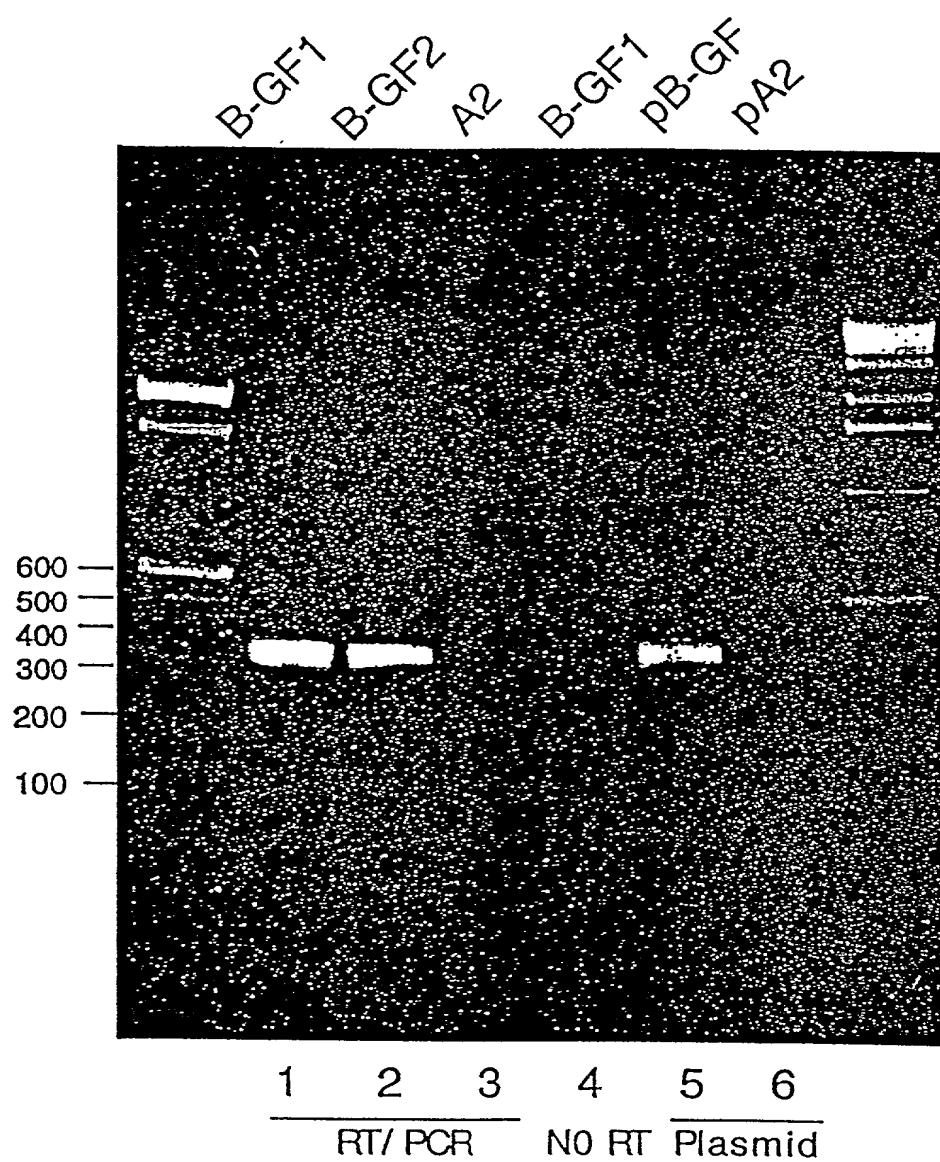
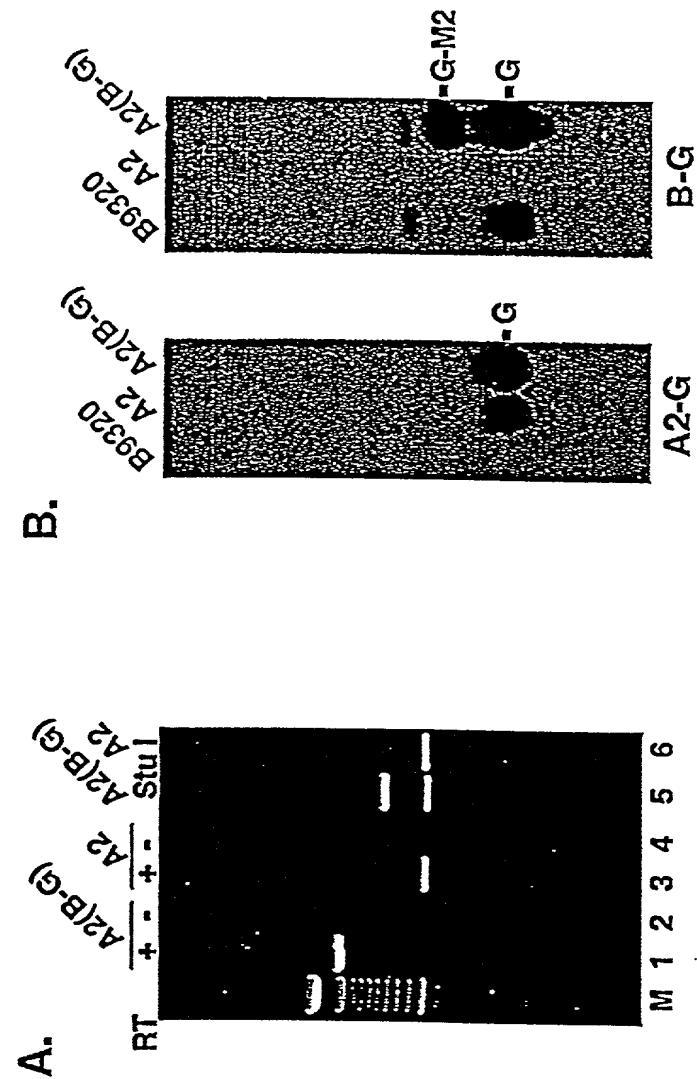


FIG. 5



FIGS. 6A-B

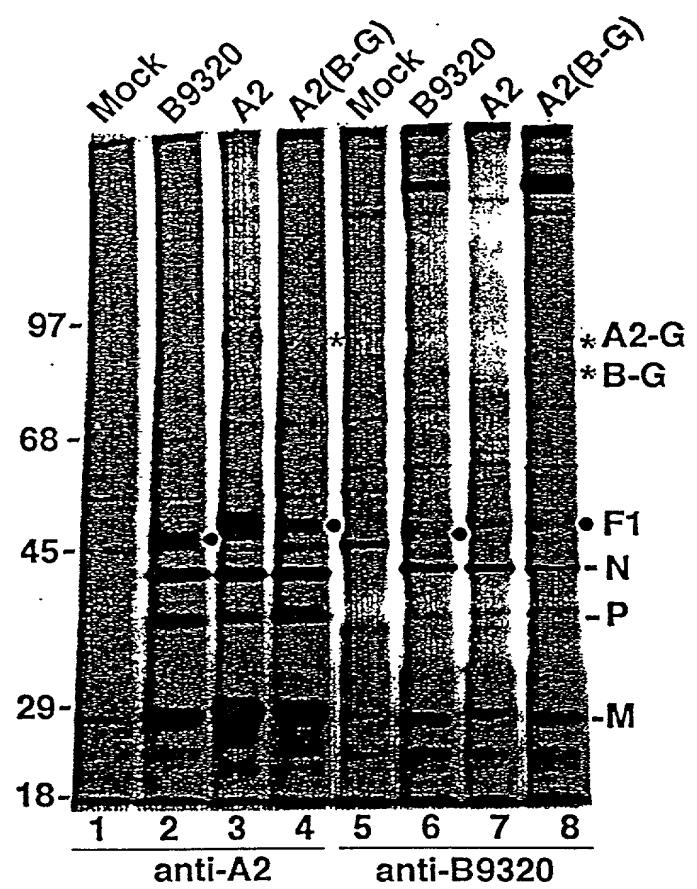


FIG. 7

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(SHEET 8 OF 12)

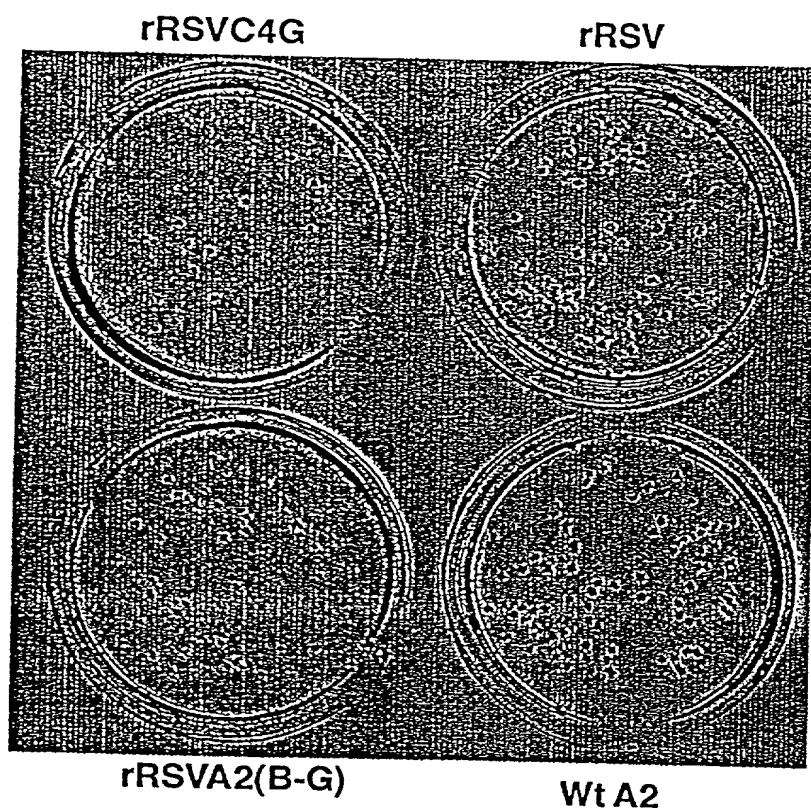


FIG. 8

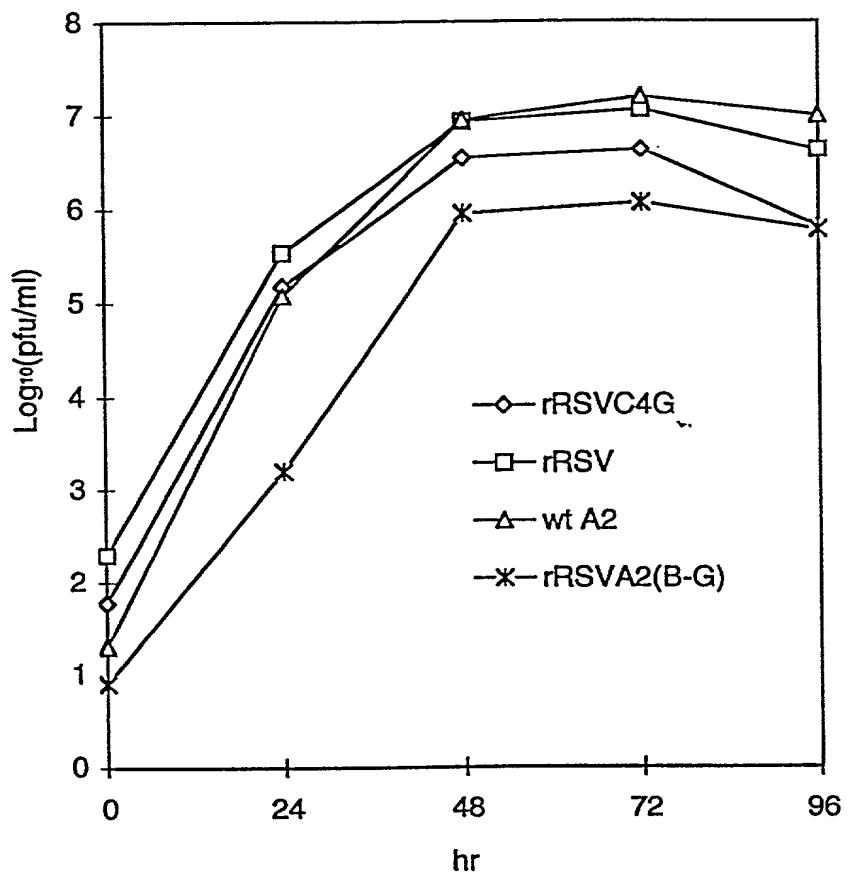


FIG. 9

MDPLINGNSANVLT DSYLKGVTISSECVNA ~~LGSTYLTENGPFYERNDY~~ ~~ATNEISRQNPLIEHAN~~ IKKLNITQSLISKH 75
 KGEIKKLEEPYFQSL LMITYKSMTSSEQIAT TNLLKKIIRRAIEIS DVKVYAIINKLGLKE KDKIKSNGQDEDNS 150
 VITTIKKDDILSAVK DNGSHLKADEKHSTK QKDTIKTTLKLMC SMQHPPSMWLLHWMENL YTKLNNLITQYRSNE 225
 VRNHGFTLIDNQTLG GFQFTIINOYGCIVYH KELKRITVITYNQFL TWDISLSRINVCLT TWISNCNLTINKSLG 300
 LRCGFENVNVLTVLQFL YGDCILKLFHNEGTY LIKEVEGFIMSLTLN ITEDQFERKRFYNSM INNITDAANKAQDNL 375
 LSRVCHTLLDKTVSD NINGRWTLLSKEL KLIKLAGDNMNLIS ELYFLFRIFGHPMV2 ERQAMDAVKINCNET 450
 KFYLSSLSMTRGAF TYRITKGEVNNYNRW EPLRNATVPLRMLT YYKLNTYPSLILTEL ERLIVLSGLRFYREF 525
 RLPKKVVDLEMINDK AISPPKNTIWTISFR NYMPSHIQNYTIEHEK LIKSESDKSRRVLEY YLDRDNKFNECDLYNC 600
 VVNQSYLNNENHWS LTGKRELLSVGRMFA MQPGMFRQVQILLAEK MIAENLILQFFPESLT RYGDLELQKILELKA 675
 GQTHAQADYLLAANS LKLLYKEYAGIGHTL KGTETYISRDMQFMS KTIQHNGVTTYPASIK KVLRVGPWINTLDD 900
 FKVSLESTGSITQEL EYRGESILLCSSLERN VMLYNQIALQLKNHA LCNNKKLYLDLKVLK HLKTFENLJDNTAL 975
 TLYMNLPMLFGGGDP NILYRSEYRRTDPFL TEAIVHSVFTLSYYT NHDLKDKLQDLSSDR LNKFLTCILITEDKNP 1050
 NAEFTVLMRDPAQALG SERQAKITSEINRLA VTEVLSTAPNKFSK SAQHYTTTEIDINDI MQNIEPTYPHGLRVM 1125
 YESLPFYKAEKVNL ~~ISGKTSITNILEKTS~~ AIDLTIDDRATEMR KNITLILRILPLDCN RDKRETELSMENLSIT 1200
 ELSKYVTERSWSLSN TVGVTSPSTMYTMDI KYTTSTTSSGIIIEK YNTVNSLITRGERGPTK PWVGSSSTQEKKTMIV 1275
 YNRQVLTKQRDQID LLAKLDWVYASIDNK ~~DEFMEELSIGLTG~~ YEKAKKLEPQYLSVN YLHRLTVSSRCPCEFP 1350
 ASTPARYTTNIFDTI SPINRILITTEKYGDED IDTIVONCISFGLSL MSVVEQFTINVCNPNRI LILPKLINEHLMKPP 1425
 JFTGDDIHKLKQVI OKQHMFLPDKISLTQ YVELFLSNKTKSGS HVNSNLILAHKISDY FHTNTYLLSTTNLAGHW 1500
 IIIIQLMKIDSKGIFP KDWGEGYITDHMFIN LKVETNAVTKYLLCF HKGYGKAKLECDMT SDLLCVLELIDSSYT 1575
 KSMSKVFLQKVYK ILSQDASLHRVKGCN SFKLWELKRNVAEFT TVCPWVNUIDYHPTH MKALITYIDLYRMGL 1650
 INIDRHHIKNKHKEN DEFYTSNLFYTNMF SDNTHLITKHIRIAN SELENNYYNKLYHPTP ETLENILANPIKSND 1725
 KXTLNDYCGKNTDS IMPLLSNKKLIKSS AMIRTNYSKQDLYNL FPMVVIDRITDHSGN TAKSNQLYTTTSHQI 1800
 SLMVNSTSLYCMLPW HHTNRFNHFSSSTGC KISIEYVLLKDLKIKD PNCLAFIGEGAGNLL LRTVVELHDIRYLY 1875
 RSLXKDNDHSLPIEF LRLYNGHINTDYGK DEKLDNNTILKTYVC LGSKLKGSEVYLVLT IGPNANIFPVENVVQON 1950
 EWSKXHVRKCKYCSSV NKCMILIVKHYAQDDI AKLILSRTKNEIMPK KADKESTIDANIKSLI PFLCYCPTKKGINTA 2025
 HXHMNLLKWNHVLN FRSTELNMYHLYME STYPLSELLINSLT NELKKLIKITGSILY NEHNE 2100
 2165

Charged Clusters (Amino Acids that are underlined were changed to alanines)
 Mutations in cpts-248/404
 Mutation in cpts530

FIG. 10

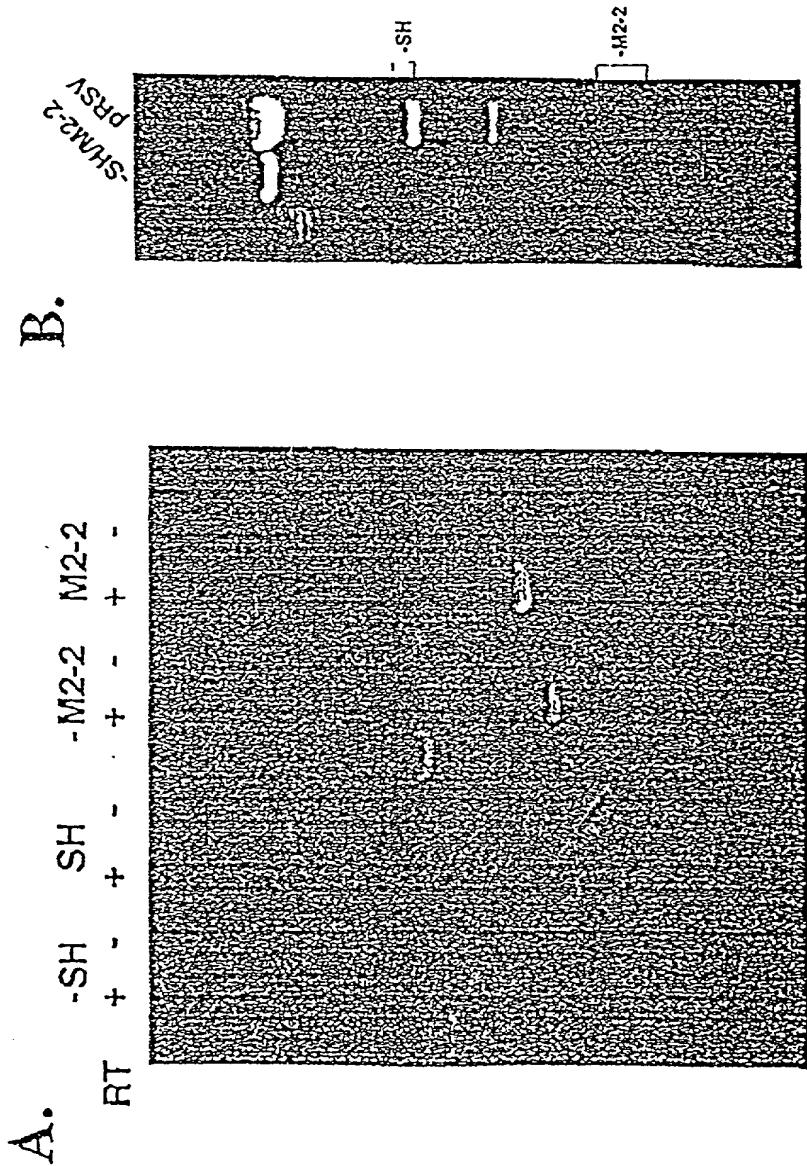
MDPIINGNSANVYLT DSYLKGVISFSECNA LGSYIFNGPYLKDNY TNLISRQNPLIEHMN LKKLNITQSLISKH 75
 KGEIKLKEEPTYFQSL LMITYKSMTSSEQIAT TNLKKKTIIRATEIS DVKVAAILNKLGLKE KDKIKSNNNGQDEDNS 150
 VITITIICKDDILSAVK DNOQSHLKAQDKANHSTK QKDTIKKTTLKKLKC SMQHPPSWLTIWFMV YKLNNTLTIQYRSNE 225
 VKNHGGFTLIDNQTLIS GFQFILNQYQGCTVYH KELKRITVTTYNQFL TWKDISLRSRINTVCLI TWISNCLNTLINKSLG 300
 LRCGFNNVLLTQLFL YGDCILKLFHNEGFY LIKEVEGFIMSLILN ITEEDQFRKRKFVNSM LNNITDAANKAQKNL 375
 LSRVCHTLLDKTVSD NITINGWILLSKFL KLIKLAGDNINNLS ELYELFLRIFGHPMVD ERQAMDAVKINGNET 450
 KFYLLSSLSMRLCAF TYRILIKGFTVNNRNW PTLRNATVLPRLRMLT YYKLNTYPSLLELTE RDLIVLSGLRFYREF 525
 ELPKVDLLEMINDK ALSPPKNLIMTSFPR NYMPSHIQNYTEHEK LKFSESDKSRRVLEY YLRDNKFNEDLYNC 600
 VVNQSYINNPNHVV S LIGKERELSVERGMFA MQFGMFRQVQVIIAEK MIAENILQFPEPSLT RGDDLELQKILELKA 675
 GISNKSNRYNDNANN YISSKCSTITDLSKFN QAFRYETSCCICSDVL DELHGVOQSLSFWIHL TIPHVTIICTYRHAP 750
 PYIGDHTVDLNNVDE QSGLYRYHMGIGEWN CQKLWTLTEAISLSDL IISLKGKFSSITALING DNQSIDISKPIRLME 825
 GOTHAQADYLILANS LKLLYKEYAGIGHKL RGTEETYISRDMQFMS KTIQHNGVYVYPAEK KVLRVGPWINTLDD 900
 ETKVSLESIGSLTQEL EYRGESLLQSLIFRN VWLQYQJALQQLKNAH. LCNNKLYLDILKVLK HLKTFENLDNIDTAL 975
 TLYMNLPMLFGGDP NLLYRSFYRRTPDFL TEAIVHSVFLLSYYT NHDLKDKLQDLSDDR LNKFELTCIITFDKNP 1050
 NAEFTVIMRDQALG SBRQAKITSETNRLA VTEEVILSTAPNKFPSK SAQHYTTEIDLNDI MONIEPTYFHGLRUV 1125
 YESLPFYKAEKIVNL ISGTSKSITNILEKTS ADDLTIDRATEMMR KNITLLIRILPLDQN RDKEILSMEENLST 1200
 ELSKYVFRERSWSLISN IVGGVTSPSJDMYMDI KYTTSTISSGIIIEK INVNNSLTRGERGPTK PWVGSSSTQEKKKTMPV 1275
 YARQVLTAKQDQD LLAQKLDWVYASIDNK DEFMEELSIGTGLIT YEKAKKLFPOYLSVN YLHRITVSSRBCFEP 1350
 ASIPTAYRTTINYHEDT SPINRILTEKYGDED IDIVFQNCISFGSLI MSVVEQFTNVCPNRI ILIPKLINEIHLMKPP 1425
 TFTGDVDTHKLKQVI QKQHMFLPDKISLTQ YVELELSNKTLKSGS HVNSNLILAHKISDY EHNTYILSTNLAGHM 1500
 ILLIQOLMKDSKGFE KDWGEGYLTDMHMFN LKVFENAYKTYLICF HKGYGKAKLECDMNT SDLICVLELDSSYW 1575
 KSMSSKVELEQKVTKY ILSODASLHRVKGCH SEKLMFLKRINVAEF TVCPCMVVNLDYHPTP MKAIALTYIDLVRMGL 1650
 INIDRITHKKNKHKFN DEFYTTSNLFEYINYNE SDNTTLLTKHIRIAN SELENNYNNKLYHPTP ETLENILANPIKSND 1725
 KKTLLNDYCGKNDs IMPLLSNKLIKSS AMIRTNYSKQDLYNL FPMWVIDRITDHSGN TAKSNQLYTTSHQI 1800
 SLLVANSTISLYCMLPW FHNRENFVFSSTGC KISIEYILKDLIKID PNCLIAF1IGEGAGNL LRTVVELHPDIRIYI 1875
 RSLKDCNDHSLPTEF LRLYNGHINIDYGEN LTIPATDATNNIHWIS YLHDKFAEPISLFWC DAELSVTVNWSKIII 1950
 EWISKHYRKCKYCSSV NKCMILIVKXHAQDDI DEFKLNDNTILKTYVC LGSKLKGSEVYVLT IGPMANIFPVENVVQN 2025
 AKLILISRTQNFIMPK KADKESIDANIKSLLI FELCYPITKKGINTA LSKLKSUVSGDILSY SIGRNEVEFSNKLIN 2100
 HKMMLILKWNENTVN FRSTELNYNHYMVE STYPPYLSELLNSLT NELKKLKIKTGSLY NFHNE 2165

C Cysteine residues

Cysteine residues that were changed to valine or aspartic acid

Cysteine residue deleted

FIG. 11



FIGS. 12A-B